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PEST REPORT

Pacific Forestry Centre • 506 West Burnside Rd. • Victoria, B.C. • V8Z 1M5

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SPECIAL REPORT

STATUS OF SPRUCE BEETLE IN MATURE SPRUCE IN BOWRON LAKE PROVINCIAL PARK, FALL 1986

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There was little evidence of currently active spruce beetle, Dendroctonus rufipennis, in mature spruce stands surveyed west and south of Wolverine Creek in the northeast corner of Bowron Lake Provincial Park (Map). Very light endemic beetle populations occurred in two recent windthrown trees, but pose no immediate threat to adjacent healthy trees. About 36% of the mature spruce in the area was killed by the beetle prior to 1984 (Table). Overwintering brood mortality and reduced host availability contributed to the decline in recent attacks.

The ground survey to determine the current status of spruce beetle population was implemented following aerial observations of spruce stands in the Park by CFS-FIDS in 1985 and subsequent discussions with the Ministry of Environment and Parks. The observations had indicated a potential for increasing populations in the Park in 1986 which may have posed a threat to adjacent healthy spruce stands. Parks Branch flew two 2-man CFS-FIDS crews by float-equipped Beaver to Isaac Lake from Williams Lake on September 20.

Two cruise strips along an estimated 3 000 metres contained 58 prism blocks and 390 trees. About 45% of the trees on the plots were white spruce, the remainder included western hemlock, western red cedar, alpine fir and black cottonwood. Sixty-one per cent of the spruce were healthy, 36% had been killed prior to 1984 and 3% successfully strip attacked (partial pitchout) in 1986; one tree was successfully attacked in 1984, but no longer contained any brood. The beetle-killed trees ranged from 41 to 53 cm dbh, and healthy trees averaged 35 cm dbh.

External sporophores of red ring rot, Fomes pini, a heart rot, were present on about 10% of the standing and windthrown spruce in the cruised stands. Infection reduces tree vigor, predisposing trees to successful beetle attack.

Contrary to the concerns expressed to Parks Branch in 1985 (based solely on aerial observation), current spruce beetle populations in Bowron Lake Provincial Park do not pose a threat to spruce stands in the Park nor to stands in adjacent Crown lands. The foliar discoloration observed in August-September 1985 and attributed to possible one-year-cycle beetle populations, was the result of normal two-year cycle beetle attacks in 1984.

Windthrow in the early 1980's in and around the Park was the major factor which resulted in the increased incidence of tree mortality between 1982 and 1984. Natural control factors and subsequent harvesting and salvage programs on adjacent crown lands contributed to the reduction of broods in standing and windthrown trees.

As there was no evidence of new attacks in standing trees and only very low endemic beetle populations, all in recent windthrow, significant tree mortality by spruce beetle is not expected to occur in the Park in the near future. Should significant numbers of windthrown spruce (the beetle's preferred host) become available at the appropriate time to be attacked by spruce beetle, then population buildups could reoccur. Monitoring of such a possibility will be continued annually by CFS-FIDS.

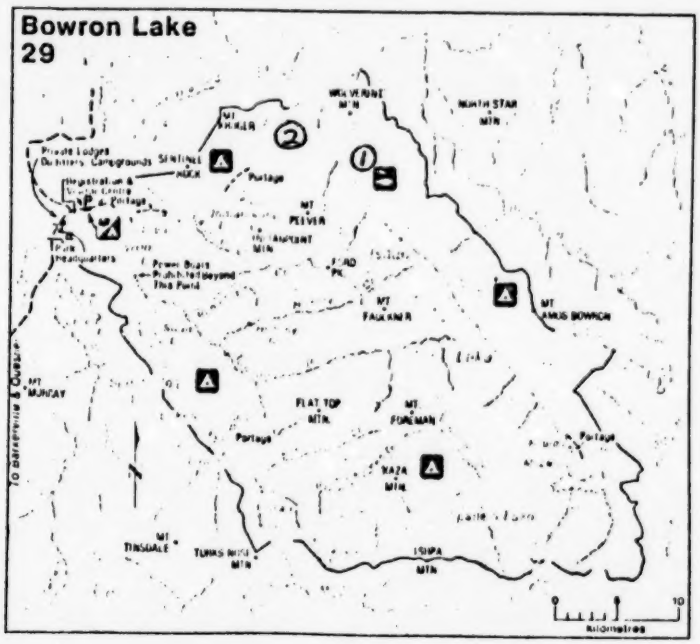
Incidence of spruce beetle attack and status of mature spruce at Isaac Lake, Bowron Provincial Park, determined by CFS-FIDS ground cruises, September 1986.

Strip no.	No. of[1] prism plots	No. of trees		Condition of spruce trees in plots[2]				
		total	spruce	H	C	R	G	P
1	37	# 249	93	66	-	1	23	3
		% 100	37	71	-	1	25	3
2	21	# 136	81	39	-	-	41	1
		% 100	60	48	-	-	52	-
TOTAL	58	# 385	174	105	-	1	63	4
		% 100	45	61	-	-	36	3

[1] BAF 5 metric, at 50 m intervals

[2] H - Healthy; C - Current (1986 attack); R - red (1984/85 attack); G - Grey (attacked prior to 1984); P - Partial 1986 attack.

Map Locations of CFS-FIDS prism cruise strips to determine incidence of spruce beetle attack in Bowron Lake Provincial Park, September 1986.



(1) Strip #1

(2) Strip #2